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ABSTRACT

Sentences produced by children and adults in telling stories are analyzed, with particular emphasis on developmental trends in sentence length, the degree of cohesion between clauses, and the internal coherence of sentence content. Subjects for the study were 10 adults and 60 Japanese children in six different age groups. Each subject was interviewed individually by two women, one eliciting the narratives and the other serving as listener. Two types of material were used to elicit narratives: a set of picture cartoons depicting short stories, and a seven-minute videotape, which was a segment from a popular television series. In general, the task that required telling the story depicted by the cartoons proved easier than narrating the video segment from memory. Only seven of the children under five years of age were able to produce enough narration about the videotape to include their stories in the analysis. Two aspects of the findings are isolated for special comment: (1) the nature of the adult model for sentence formation and variations in consistency used in marking narrative units with sentence boundaries, and the use of conjunctions; and (2) the way in which the development of sentences in narratives by children mirrors the acquisition of sentences in conversation at an earlier stage of language development. (Author/AMH)

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The Development of Sentences in Japanese Narrative Discourse

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Table 1. Subjects and Tasks

	Cartoon		Video	
Age	Male	Female	Male	Female
3.8 - 4.0	5	5	2	1
4.4 - 4.8	5	5	1	3
5.0 - 5.4	5	5	5	5
5.8 - 6.0	5	5	5	5
6.4 - 6.8	5	5	5	5
7.0 - 7.4	5	5	5	5
Adult	5	5	5	5

Table 2. Narrators' Preferred Sentence Length

	Cartoon				Video			
	Single Clause	Short	Inter	"End-less"	Single Clause	Short	Inter	"End-less"
3.8 - 4.0	7	1	1	1	1	2	-	-
4.4 - 4.8	3	4	2	1	-	1	3	-
5.0 - 5.4	2	3	3	2	2	4	2	2
5.8 - 6.0	-	3	3	4	3	-	5	2
6.4 - 6.8	-	3	4	3	1	2	4	3
7.0 - 7.4	-	4	3	3	-	3	4	3
Adult	-	6	4	-	-	6	4	-

Example (1). Ijimete ta no. F 3.11 yrs
Soshite ne, asonde ta no.
Soshite ne, eto ne, byooki datta no.
Soshite ne, onetsu ga atta no.

He was teasing her.
Then, he was playing.
Then, um, she was sick.
Then, she had a fever.

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Table 3. Percentages of Sentences and Sentence Boundaries Coinciding with Narrative Units

	Coherent Unit Sentences	End of Unit Sentences
3.8 - 4.8	.30	.86
5.0 - 5.4	.26	.79
5.8 - 6.0	.23	.82
6.4 - 6.8	.27	.80
7.0 - 7.4	.20	.70
Adult	.18	.62

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Example (2). Otooto to imooto ga iru no, Sazaesan ni ne. F
Sore wa moo ne "konna itazura na no wa ne, Adult
moo taihen dakara ne,
shikata hoo ga ii" tte yuu no.
De sorede ne, sono aida ni ne,
Sazaesan ga, sono Ikurachan o ie ni oite ne,
/inaudible/ tokoro ni itte,
iroiro ano otetsudai shite,
kaette kite,
shite yuugata mo ne,
ano Sazaesan no otoosan kaette kuru n dakedo,
moo uchi no naka ga tenya wanya de,
ano oyuushoku no sh shitaku mo naka naka dekinai no.

Sazaesan has a younger brother and sister.
They say "really a child this mischievous,
it's really awful,
so you should scold him."
And then, during that time,
Sazaesan, leaves Ikura in her house,
and goes to /inaudible/ place,
and helps out in various ways,
and comes back home,
and then at night,
um Sazaesan's father comes home,
but really the house is a mess,
and uh they just can't get around to pre preparing dinner.

Table 4. Narrators' Preferred Clause Transitions

	Cartoon					Video				
3.8-4.0	New S	New S +Conj	Cl-fin Conj	Two Conj	No Pref	New S	New S +Conj	Cl-fin Conj	Two Conj	No Pref
3.8-4.0	7	1	2	-	-	1	2	-	-	-
4.4-4.8	3	3	3	-	1		1	2	-	1
5.0-5.4	2	1	5	-	2	1	3	5	1	-
5.8-6.0	-	1	4	1	4	1	1	5	1	2
6.4-6.8	1	1	6	2	-	-	1	6	2	1
7.0-7.4	1	-	7	1	1	-	-	5	3	2
Adult	1	-	7	-	2	-	-	4	-	6

Table 5. Relative Frequencies of Clause-Final Conjunctions

	Cartoon					Video				
	-te	-tara	kara	kedo	other	-te	-tara	kara	kedo	other
3.8-4.0	.84	.06	.05	.007	.04					
4.4-4.8	.90	.05	.02	.005	.03	.65	.11	.15	.02	.07
5.0-5.4	.88	.04	.04	.003	.04	.65	.14	.09	-	.12
5.8-6.0	.84	.04	.07	.008	.04	.81	.09	.06	.01	.03
6.4-6.8	.80	.06	.06	.02	.06	.76	.08	.07	.02	.07
7.0-7.4	.81	.04	.06	.02	.07	.79	.09	.06	.03	.03
Adult	.59	.04	.04	.12	.21	.48	.08	.10	.12	.22

-te: and/and then/and so/-ing
-tara: when/and then/(if)
kara: so/because
kedo: but

The Development of Sentences
in Narrative Discourse

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Developmental studies of sentence structure have investigated the emergence and early development of conjoined sentences, but the nature of sentence structure and function in connected discourse has not yet received much attention. In this paper I will analyze the sentences produced by children and adults in telling stories, focusing on developmental trends in sentence length, the degree of cohesion between clauses, and the internal coherence of sentence content.

The subjects for this study were 60 Japanese children in six different age groups and 10 adults. Two types of materials were used to elicit narratives from these subjects: a set of seven picture cartoons, each consisting of from five to nine frames, which depicted short stories about four little children; and a seven-minute color videotape, which was a segment from a popular television series. The ages of the subjects are given on Table 1 of the hand-out, which shows how many of the subjects performed each task.

Each subject was interviewed individually by two young women, one who primarily elicited the narratives, the other who served as the listener. Stories based on the cartoon picture sets were elicited first. The task was presented as a game in which the child would tell the story to the listener, who covered her eyes during narration. The elicitor sat beside the child, and showed him each cartoon set, encouraging him to tell the story to the listener, who sat across from them. After going through the cartoon

sets one by one, the child was shown the videotape. The listener would say she had to leave for a while, and the child was asked to tell her the story when she came back, after watching the videotape with the other interviewer.

Meanwhile, I sat at a table in back of the child and the elicitor, operating the video machine and observing the session. Most children did not pay much attention to me, and seemed to forget my presence as soon as they were seated and looking at the pictures. If any child turned around to look at me or asked questions about me, the interviewer would say that I came with the machinery, that I was there to run the video machine. The children seemed to find this explanation quite acceptable; they were used to seeing westerners with various types of machinery, such as Peter Falk advertising refrigerators on TV.

In general, the picture story task was much easier, and after some warming up withthe elicitor's help on the first and sometimes second cartoon set, all the children within this age range were able to tell at least a few of these stories. The children over five years of age typically needed no help at all. However, telling the story of the videotape from memory was much more difficult, and as Table 1 on the handout shows, only seven of the children under five years old were able to produce enough narration independently to include their stories in the analysis.

Sentence Length

The structure of a narrative can be analyzed at many different levels. On the discourse level, there are a variety of narrative

units such as "setting" and "episode;" on the syntactic/semantic level, there are single propositions or clauses. These are the two levels which are typically considered in narrative analysis. In between these two is the sentence, a level of organization which has both linguistic and cognitive significance. Creating this level of structure may be viewed as the performance of two tasks: deciding where to place sentence boundaries and selecting conjunctions to link the clauses within the sentences thus created.

The most obvious aspect of sentence construction, and the easiest to investigate, is sentence legnth, which I have measured in terms of the number of main, or unembedded, clauses which a sentence contains. Although sentence length did vary somewhat depending on the content of the material being narrated, in general, speakers seemed to have a "set" for sentence length, and for most speakers it would be possible to determine a two or three-clause range within which most of their sentences fell. To analyze developmental trends in constructing sentences, the average number of clauses per sentence was computed for each subject, separately for the cartoon and video tasks. Then each subject was categorized in one of four different groups on the basis of his average sentence length. Table 2 on the handout presents the breakdown of subjects at each age according to these four categories of sentence length.

Group 1 includes subjects who produced primarily single-clause sentences; the criterion for this category was an average sentence length of fewer than 1.5 clauses per sentence. These narrators were using basically a syntactic strategy, in which the

sentence level is identified with the level of the clause, and the narrator simply starts a new sentence at the start of almost every new main clause. The second group of narrators had short sentences, defined as an average sentence length of between 1.5 and 2.5 clauses per sentence. The "intermediate" group includes narrators with longer average sentence lengths, but still shorter than the last group of narrators, who used what I have labelled "endless" sentences. On the video task, this was defined as a sentence of 10 or more clauses, or half or more of the entire narrative. On the cartoon task, this was defined as using a single sentence to tell the whole story of a cartoon set, for at least three of the sets. These narrators are, in a sense, the opposite of the first group; they are identifying the level of the sentence with the highest level of structure, that of the narrative as a whole.

As Table 2 shows, many of the children under four years old tended to equate the level of the clause and the sentence, producing a series of single-clause sentences. Example (1) on the handout will give you an idea of what this strategy is like; this is the beginning of the videotape narrative of a girl aged 3 years 11 months. This is a developmentally early strategy, which probably reflects cognitive limitations on planning the conjoining of successive clauses during narration.

Short or intermediate sentences were preferred by the majority of subjects at all ages over four years. The adults are different from the children in their tendency to use rather short sentences and in their failure to use "endless" sentences. None of the adults

attempted to recount even the story of a single cartoon set in one sentence. The longest average sentence length for an adult narrator was somewhat over five clauses. In contrast, several children tended to equate the levels of the sentence and entire narrative, and used sentence-final closure only at the end of their whole story. For example, one five year old told the entire story of the videotape in a single, 28-clause sentence. As Table 3 shows, this strategy was used primarily by children over give years old.

The "endless" sentence is similar to the single-clause sentence in that it ignores an intermediate level of linguistic structure between the clause and the narrative. But child narrators using "endless" sentences must select a conjunction to link each clause in turn; this is a more difficult and developmentally advanced strategy, although it still eliminates the task of deciding where to place sentence boundaries during narration. It would be interesting to study sentence length longitudinally, and discover whether the "endless" sentence in narratives is characteristic of a particular developmental stage, and whether it is an intermediate stage on the way to learning to create a distinct sentence level.

Sentence Coherence

One interesting question about sentence structure is how speakers decide what material to unite in a single sentence. The placement of sentence boundaries provides speakers with a linguistic means of marking units within a narrative. Since the videotape narratives could be analyzed into units such as "setting" or "episode," perhaps speakers create sentences on the basis of these

underlying narrative units, and the content of individual sentences would coincide with the content of these categories. I have investigated this question using only the videotape narratives, since the frame-by-frame structure of the picture cartoon sets was less natural.

The first column on Table 4 on the handout gives the percentage of sentences in each age group whose content consisted of a single coherent unit of story structure, such as "events," "Reaction" or "episode." As the table shows, less than 1/3 of all sentences seemed to be based upon an underlying unit of coherent narrative content. Many sentences were too short, and presented only part of one such coherent unit. Other sentences were too long, incorporating more than one coherent structural unit. Furthermore, the level of inclusiveness of the narrative units corresponding to sentences differed significantly, both across speakers and within the narrative of a single speaker, ranging in size from entire episodes to single speech turns in reported dialogue.

Example (2) on the handout provides a typical example of sentence coherence, or lack of coherence. In this example, the background setting for one scene, given on line 1, is presented in a single sentence. Then the main event of that episode, the complaints of Sazaesan's brother and sister, are given in a separate sentence, lines 2 to 4. The next episode, in which Sazaesan visits the mother of the mischievous child, is begun in a new sentence, on line 5. But when that episode is over, and a new one begins on line 10 with a temporal setting and the arrival of a new character, there is no sentence boundary. Instead, the narrator continues on past this point through the setting for the

next episode, before ending the sentence on the last line of the example.

Thus the content of each individual sentence usually does not correspond to a single coherent narrative unit. But if we consider only those sentence boundaries that a speaker does use, we find that they usually fall at the ends of identifiable narrative units - in example (2), a setting, an events section, and another setting. The second column of Table 4 gives the percentage of sentences which end at the end of a narrative unit in this way. It is clear that the great majority of sentence boundaries in these stories did mark the ends of narrative units.

The figures in Table 4 suggest some hypotheses about the nature of sentence formation during narration. Speakers recognize, and mark linguistically with sentence boundaries, at least the following narrative units: the entire narrative, the story setting, episodes, episode settings, event sequences, reactions, departures, speech turns, conversational pairs, evaluations, introspections, questions, comments, and codas. However, these units are marked with sentence boundaries only some of the time. Speakers frequently ignore the ends of more inclusive units such as episodes, while marking the ends of smaller units such as speech turns. Apparently, speakers don't preplan entire sentences; they don't seem to see to the end of the narrative units which they begin to recount in a new sentence. Instead, narrators seem to maintain a rather diffuse awareness of potential discourse boundaries at different levels as they tell a story, and mark these inconsistently, probably depending upon the cognitive demands which are being

imposed at a given moment. Obviously, placing sentence boundaries at the end of an episode is much less crucial than, for example, recalling what happened in the next episode. Since speakers also tend to have a preference for a certain sentence length, but elaborate different parts of their story in different numbers of clauses, sentence boundaries do not coincide with any consistent hierarchical level of narrative structure, such as the episode, even in the story of a single speaker. The result of all these factors is that there is a clear but imperfect correlation between the placement of sentence boundaries and narrative structure. About 20 - 40% of the sentence boundaries in these narratives did not correspond in an obvious way to the boundaries of narrative units.

With respect to development, Table 4 seems to indicate that the children use sentence boundaries to mark narrative units even more consistently than the adults, with decreasing consistency across the age range of children. This is true only because the youngest children produced rather skeletal narratives, for example, presenting only the single most important event from each episode. Since the younger children also tend to start a new sentence with each new clause, it is difficult to distinguish a syntactic strategy for sentence formation from a strategy of marking discourse units. The adults' narratives were elaborated in much greater detail than the children's, and they used a greater number of clauses to recount a single narrative unit. Many of the adults also tended to use rather short sentences, as Table 2 has shown, and as a result, have a lower degree of correspondence between sentence and discourse

structure. As the children's age increases, and they use both longer sentences and more elaborated narrative structure, it becomes clear that they are following the basic principle of placing sentence boundaries at the ends of narrative units, like the adults. The only clear cases where children have a lower degree of correspondence between sentence and narrative structure than the adults are the children who use "endless" sentences, ignoring all but the highest level of narrative structure.

Inter-clausal Cohesion

Just as narrators can use sentence boundaries to mark points of lowered cohesion, the ends of unified sections such as episodes, so they have the option of using linguistic connectives between clauses to create varying degrees of cohesion or unity within coherent units of content. In Japanese, there are four different options speakers can use for the transition between two clauses, which represent different degrees of cohesion. The first option is to use a sentence boundary without any conjunction at the start of the new sentence. This emphasizes the boundary or lack of cohesion between clauses, and leaves any relationship between them implicit. The second type of transition between successive clauses is to use a sentence boundary, but with a conjunction such as "sorede," which means approximately "and then," at the start of the new sentence. This both indicates the presence of a boundary and specifies the semantic relationship between clauses. The third option is to conjoin clauses within the same sentence. In Japanese, which is a verb-final language, the connection between two clauses

which a speaker wishes to conjoin is obligatorily marked at the end of the first clause, by a non-final verb form or a conjunction after the verb. There is also another option in Japanese, the fourth on the handout, which is to use both the obligatory connective at the end of the first clause, and also a conjunction at the start of the second clause, which is optional. In these cases, the semantic relationship between clauses is occasionally made more precise or changed, but usually is just marked redundantly. These options can be viewed as a continuum of inter-clausal cohesion from maximum independence with the first option to maximum cohesion with the fourth.

Table 4 on the handout shows the developmental trends in the use of these four options for connecting clauses. Each narrator was categorized as preferring one of these options, whichever one he used most frequently, providing that at least one option was used for 40% or more of his clause transitions. If no one option was used at least 40% of the time, that narrator was categorized as having no preference.

As Table 4 shows, the very frequent use of sentence boundaries without conjunctions tends to be a developmentally early strategy, and was common only among children under 5½ years old. Children at this stage seem to be just beginning to develop the ability to produce a lengthy connected discourse. They are in a transition phase between the alternating turns of conversation and the monologue of narrative. They tend to require constant prompting, and seem to be modeling their sentences on interactive conversation.

The second option, using a new sentence but with a conjunction

such as "sorede" (and then) at the start, was also an early strategy. In the data from the cartoon task, there is a shift from the first to the second option among the youngest two groups of children. Thus the second option seems to represent a slightly later stage of development in the ability to produce connected discourse. Among children who use a single-clause strategy for sentence formation, the first indication of a movement toward real narrative, and away from conversation, is apparently the constant use of "sorede" (and then) to link successive sentences.

For children over five years old, the favorite option was to use clause-final conjunctions; most of their clauses were linked to one another in a connected stream of narration. This was also a common choice among the adults.

The fourth option, using both a clause-final connective and the optional clause-initial conjunction showed a similar U-shaped pattern as the "endless" sentence. It appears among a few of the older children, but is not used by the adults. The younger children and adults have shorter sentences and also tend to reserve clause-initial conjunctions like "sorede" (and then) for the start of new sentences. The children between five and seven years of age often use "endless" sentences, and clause-initial conjunctions within these sentences. Using these conjunctions is as close as these children come to dividing up their "endless" sentences into intermediate-level units.

The "no preference" column is interesting, especially for the video task, which was the more natural one, presumably closer to ordinary narration. As this column shows, most adult subjects

did not use any one conjoining option much more frequently than the others on the video task, but rather, varied the types of connections between clauses more than the children. Thus one direction in which development proceeds is toward increased flexibility rather than constant repetition of a single strategy for making the transitions between clauses.

When successive clauses in a sentence are linked by conjunctions, the degree of cohesion also varies with the particular conjunction selected. Thus a very general connective like English "and" does not integrate clauses as closely as semantically more specific conjunctions such as "so" or "but." Both Chafe (19) and Labov (19) have found that in English narratives, the most common connective is "and," and the only other conjunctions that occur with any frequency are "but," "so" and "then." Although the syntax of clause conjoining is quite different in Japanese, the same basic picture holds. In Japanese narratives, by far the most common conjunction is "-te", a non-final verb form used at the end of the first of two conjoined clauses. Like English "and," "-te" coordinates two actions or states, and expresses temporal or causal sequence. It also frequently connects clauses which in English would be related by a participial construction, such as "he played, building a sand castle."

Table 5 on the handout shows the relative frequencies of the four most common conjunctions in these narratives. The major finding is that the adults used "-te" much less frequently than the children, relying upon other, more specific connectives. Although such conjunctions as "nagara" (while) and "toki" (when)

did not occur in sufficient numbers to affect the relative frequencies on Table 5 very much, there was a tendency toward increasing specificity and greater cohesion between clauses across the age range of children. Conjunctions which did not occur in the youngest children's narratives were used occasionally by the children over five years old, and a greater number of children within each age group of the older children used such conjunctions as "nagara" (while) at least once.

The only other conjunctions besides "-te" that were at all common, as Table 5 shows, were "-tara," which is usually translated as "when," but was frequently used were we would say "and then" in English, and "kara," which means "so" or "because." In the adult narratives, "kedo" (but) was usually used at transition points, such as between the setting and events of an episode, a rather sophisticated usage which the children in this age range had not yet mastered. To reach the adult level, children must learn to use a wider range of conjunctions besides the basic three, "-te," "-tara" and "kara," including "kedo" (but) at a fairly substantial frequency, and other conjunctions such as "nagara" (while) at the same low frequency with which they occur in adult narratives.

Conclusions

In conclusion, I would like to comment on two aspects of the developmental findings which are of theoretical interest.

First, the nature of the adult model for sentence formation, which appears to be qualitatively different from the model for basic syntax and semantics. There were considerable individual differences among the adults in the length of their sentences, the

degree of consistency used in marking narrative units with sentence boundaries, and the use of conjunctions. There was variation even within the narratives of single speakers. This is very similar to the findings with respect to other narrative skills, such as the presentation of sufficient background information to allow the listener to follow the course of events being narrated. Speakers differ a great deal, and some adult narrators are more successful than others. Thus children are presented with a very inconsistent and variable model of these discourse skills, and acquisition seems to be a much more gradual and lengthy process than for basic grammar. There is no obvious end-point for acquisition; many adults never fully acquire all the subtleties of successful narration.

Secondly, it is interesting to note the way in which the development of sentences in narratives mirrors the acquisition of sentences in conversation, at a later stage in development. The earliest stage in the development of sentences is simply to juxtapose related sentences with no explicit connective; this is typical of children around two years old. Gradually, a number of different conjunctions is mastered over the third year, and used with increasing frequency. In Japanese, the conjunctions "-te," "-tara" and "kara" are typically acquired by children early in their third year. However, the youngest children in the present study were almost four years old, and they were showing the early pattern of juxtaposition. It was the children from five to seven years old who were able to use conjunctions with the freedom and ease which three year olds have mastered in ordinary conversation.

Thus acquisition of the ability to use multi-clause sentences with conjunctions appears to be somewhat genre-specific, pointing out that "acquisition" or particular linguistic forms must always be defined with respect to the context in which the child is able to use them. Probably due to the much greater cognitive difficulty of producing a narrative, the development of sentences in narrative discourse repeats at a later age the progression from juxtaposition of separate sentences to the use of increasingly explicit conjunctions which has been documented in the conversation of younger children.

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